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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,910	06/28/2000	ROBERT SCHULZ	017835/0362	8730
7590	04/13/2004		EXAMINER	
TODD J. BURNS FOLEY & LARDNER 3000 K STREET N W SUITE 500 WASHINGTON HARBOUR WASHINGTON, DC 20007-5109			IP, SIKYIN	
			ART UNIT	PAPER NUMBER
			1742	
			DATE MAILED: 04/13/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/529,910	SCHULZ ET AL.
	Examiner Sikyin Ip	Art Unit 1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 December 2003.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-13 and 15-17 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-13 and 15-17 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of Group I, claims 1-12 and 14 in Paper No. 10, filed October 19, 2001 is acknowledged. The traversal is on the ground(s) as set forth in Paper No. 10. This is not found persuasive because the burden to the examiner has been shown by different classification. Moreover, applicants argue that the alloy mentioned by examiner did not contain Mg as claimed. That is because it is a different product. Applicants' argument as set forth in page 8, first full paragraph of instant remarks is noted. But, assuming arguendo, no where in the specification discloses that nanocomposite cannot be amorphous. The requirement is still deemed proper and is therefore made FINAL.

This application contains claim 13 drawn to an invention nonelected with traverse in Paper No. 10, filed October 19, 2001. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Oath/Declaration

A new oath or declaration is required because the addresses of applicants in page 4 of the instant oath were amended. The wording of an oath or declaration cannot be amended. If the wording is not correct or if all of the required affirmations have not been made or if it has not been properly subscribed to, a new oath or declaration is required. The new oath or declaration must properly identify the application of which it

is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of 37 CFR 1.71(a)-(c):

- (a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.
- (b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.
- (c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it.

The specification is objected to under 37 CFR §1.71 because the specification as originally filed fails to provide support for the invention as now claimed.

Claims 1-12 and 14-17 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as

to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Amended claims 1 and 8 recited negative limitation to exclude Mg₂NiH₄ which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants' argument as set forth in page 9, first and second full paragraphs of the instant remarks is noted. But, according to the passage (page 15, lines 25-28 of instant specification) cited by applicants that Mg₂NiH₄ is essential element, not "alternative element."

Claim Objections

Claims 11 and 17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 11 and 17 fail to further limit the subject matter of a previous claim because claims 10 and 16, respectively, that require the mixture amount is equal to 5% at a single point. Therefore, it cannot be lower to 3%.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 8-12 and 14 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5554456 to Ovshinsky et al or USP 5162108 to Bogdanovic (both references were cited in PTO-1449).

The cited reference(s) disclose(s) the features including the claimed composite composition, providing hydride step, mixing the hydride with other materials, and ball milling/grinding. The features relied upon described above can be found in the reference(s) at: Ovshinsky et al (col. 12, line 32 to col. 13, line 15, claims 1-34) and Bogdanovic (claims 1-3 and 6). The difference between the reference(s) and the claims are as follows: cited references disclose ball milling but do not disclose the final powder size in nano unit. However, it is known the nano powder is ground by ball milling so that

it is within ambit of ordinary skill artisan to form nano composite by ball milling in order to increase surface area of the composite material.

Claims 7 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over references as applied to claims above, and further in view of USP 5552246 to Hong.

The Ovshinsky and Bogdanovic reference discloses the features substantially as claimed as set forth in the rejection above except for Nb element. However, Hong in col. 4, lines 29-31 teaches V can be replaced by Nb in the same field of endeavor or the analogous metallurgical art to lower cost. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to replace V with Nb for hydrogen storage alloys as taught by Hong in order to lower cost with same effect. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

Response to Arguments

Applicant's arguments filed December 15,2003 have been fully considered but they are not persuasive.

Applicants' argument as set forth in page 10, second full paragraph of the instant remarks is noted. But, it is immaterial because none of instant claims recites γ -MgH₂ phase.

Applicants argue that the hydrogen storage material of Bogdanovic is not nanocrystalline. But, none of instant claims requires the material in crystalline form.

Applicants' argument in pages 11-13 is noted. But, the instant specification as original file does not disclose the size of the claimed composite. The unit "nano" fails to define the actual size of the claimed composite. As are evinced by USP 5376599 to Oshima et al (col. 4, lines 34-52) and WO 97/13503 (abstract and page 9, lines 16-29) that "nano" is just a unit which could be used for measuring any size of composite, powder, particle, etc.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 5376599 to Oshima et al (col. 4, lines 34-52) and WO 97/13503 (abstract and page 9, lines 16-29) are cited to show that range of nano is well overlapped with micron range.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The above rejection relies on the reference(s) for all the teachings expressed in the text(s) of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the text(s) of the reference(s). To emphasize certain aspect(s) of the prior art, only specific portion(s) of the text(s) have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combination of the cited references may be relied on in future rejection(s) in view of amendment(s).

All recited limitations in the instant claims have been met by the rejections as set forth above.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
March 22, 2004